DOCUMENT RESUME

ED 291 438 JC 880 096

AUTHOR Briggs, Linda
TITLE Skills-Intervention Instruction.
INSTITUTION Sacramento City Coll., Calif.
PUB DATE 87
NOTE 12p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Achievement Gains; *Basic Skills; Community Colleges; Comparative Analysis; *Instructional Effectiveness; *Pretests Posttests; Program Effectiveness; Reading Skills; *Remedial Instruction; Remedial Programs; Sociology; Study Skills; *Teaching Methods; Two Year Colleges; Two Year College Students; Writing Skills

ABSTRACT

The GO Project was created at Sacramento City College (SCC) to help underprepared students achieve success in a transfer-level sociology course, while improving their reading, writing, and study skills. Throughout the fall semester, students in the GO Project engaged in reading, essay writing, and study skills practice which focused on the assignments and materials in the sociology class. A study was conducted to determine whether the improvement in students' skill levels justified the amount of energy that the course took. Four pre- and post-test measures were administered to two sections of the sociology class: the Nelson-Denny Standardized Reading Test, a five-question informal reading inventory, a student essay written in response to a critical thinking question, and a reading habit inventory. A comparison of the test results of Project GO students with those of non-GO sociology students revealed the following: (1) Project GO students demonstrated a statistically significant increase in test scores on all four measures; (2) Project GO students showed a significantly greater increase in scores on the informal reading inventory and on the essay writing measure than the comparison group; and (3) Project GO students did not show a significantly greater increase in scores on the standardized reading test or on the habit survey than the comparison group. (UCM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED291438

Skills-Intervention Instruction

A Research Project Conducted By
Linda Briggs
Languages and Literature Division
Sacramento City College
Spring Semester 1987

JC 880 096

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

L. Briggs

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☒ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BEST COPY AVAILABLE

Skills-Intervention Instruction

A Research Project Conducted By
Linda Briggs
Languages and Literature Division
Sacramento City College
Spring Semester 1987

DESCRIPTION

This project is concerned with whether skills-intervention instruction has a positive effect on students' ability to: (1) read a textbook for understanding; (2) organize and write an essay answer; (3) answer text-related critical thinking questions of an inferential and/or evaluative nature; (4) view themselves as active, effective readers; and (5) improve their overall reading scores on a standardized reading test. Skills intervention instruction is defined as classroom instruction and practice in reading, writing, and study skills taught in addition to and in conjunction with a student's regular content, transfer level class.

PROBLEM

The GO project at Sacramento City College was created to help under-prepared students achieve success in a transfer level content course as well as to improve those students' reading, writing, and study skills. The project was designed to meet the needs of students whose reading and writing skills were below what would be expected of and needed by students enrolled in a transfer level course.

In the Fall of 1986, students identified by the College's assessment test as below college level in reading and writing were encouraged to enroll in the GO Project, concurrent enrollment in a Sociology class, an English 71 (or developmental reading) class, and a Human Development 1 (study skills) class. Students who elected to do this signed up for designated sections of English, Human Development, and Sociology. The intent of this structure was to facilitate student success in the Sociology class and to improve skill levels through practice using the sociology materials in the English and Human Development classes. The instructors in these classes met regularly to plan and discuss progress and problems.

Throughout the semester, students in the GO project engaged in reading, writing, and study skills practice which focused on the assignments and material in the sociology class. The skills instruction in the English class consisted of essay writing for the sociology class, vocabulary development using sociological terms, and study reading of the sociology text (SQ3R, effective questioning, cognitive mapping, outlining, summarizing, information charting, and other techniques).

One reading lab hour per week was also required. This type of integrated instruction has been recommended by reading experts for years because of the desirability of immediately associating and using skills learned in an English or study skills class with what is being required in a content class. The "hands on" nature of the skills instruction should act as added incentive for skills improvement. After participating in Project GO as the English instructor during the Fall semester, I observed improvement in the students' skills level, yet I also felt disheartened by the distance the students still had to go and the amount of energy that the course took. The perennial question, "Was it worth it?" unrelentingly lurked in my mind.

The purpose of this research project was to gather some data from the Spring semester GO project to answer the question "Was it worth it?" or "Is skills intervention instruction an effective method for enhancing students' reading, writing, and study skills?"

PROCEDURE

Four pre and post test measures were used: 1) The Nelson-Denny Standardized Reading Test, forms E and F; 2) A five question informal reading inventory using a page of the sociology text as the source of the questions; 3) A student essay written in response to a critical thinking question using the same sociology text as the informal reading inventory; 4) A reading habit inventory.

These measures were administered to two sections of Sociology 1A. One half of the students in one section of the sociology classes were participants in the GO project. Therefore, the regular sociology students who were not enrolled in GO acted as the comparison group. At the end of the semester, the pre and post performance levels of the GO students were analyzed and compared with the comparison group's.

At the beginning of the semester, all students in both sociology sections were given the above four measures within the first two weeks, in the sociology classroom. Two class periods were needed for administration. The Nelson-Denny test was intended for measuring general reading comprehension and vocabulary levels (both raw scores and reading grade level were available); the informal reading inventory was meant for assessing the ability of the students to understand their text; the essay response was for judging the ability of students to write a well-structured and relevant essay and to answer a critical/inferential thinking question; and the habit inventory was to determine the students' perceptions of themselves as readers and learners. The GO students subsequently received instruction in reading, writing, and study skills while the control group participated in no special skills exercises.

Scoring of the objective standardized test and informal reading inventory presented no problem. The habit inventory was done on a Likert Scale of 1-5. The essay was graded by the English instructor and another instructor. Names were covered and scores from 0-7 given based on the following criteria:

1) Introduction - 1 point
2) Conclusion - 1 point
3) A body of at least 2 paragraphs - 1 point
4) Definition of terms - 1 point
5) Examples and/or explanations - 1 point
6) Accuracy of content - 2 points

If the two instructors disagreed by one point, it was agreed that the English instructor's score would stand. If they disagreed by more than one point, the essay was re-scored by the English instructor. The same procedure for testing and scoring was done at the end of the semester. Again, two class periods were needed for test administration.

DATA AND ANALYSIS

The analysis part of this report will consist of three parts:

Part 1: Hypothesis tests that will attempt to establish that the students in Project GO show a significantly higher increase in test scores than students in the Control classes.

Part 2: Hypothesis tests that will attempt to establish that the students in Project GO show a significant increase in test scores using the pre-test and post-test scores obtained.

Part 3: Confidence interval estimates for the mean differences in pre and post test scores for the students in Project GO.

For each part, the following symbols will be used:

$\bar{x}$ = the mean difference (posttest/pretest) for students in Project GO.
s_1 = the standard deviation for the distribution of differences in test scores for the Project GO data.
$\bar{y}$ = the mean difference (posttest/pretest) for students in Control classes.
s_2 = the standard deviation for the distribution of differences in test score for the Control classes.

The following data will be used:

IRI (Informal Reading Inventory)	$\bar{x} = 1.143$	$s_1 = 1.292$	$n_1 = 14$
	$\bar{y} = 0.310$	$s_2 = 1.039$	$n_2 = 29$
Essay	$\bar{x} = 2.643$	$s_1 = 1.906$	$n_1 = 14$
	$\bar{y} = -0.069$	$s_2 = 1.280$	$n_2 = 29$
Nelson-Denny E & F Total Raw Score	$\bar{x} = 11.800$	$s_1 = 8.719$	$n_1 = 15$
	$\bar{y} = 7.862$	$s_2 = 10.155$	$n_2 = 29$
Habit Survey	$\bar{x} = 7.250$	$s_1 = 11.307$	$n_1 = 12$
	$\bar{y} = 3.000$	$s_2 = 10.114$	$n_2 = 28$

Part 1

For each hypothesis test:

μ_1 stands for the mean difference in pre versus posttest scores for the population of Project Go students.

μ_2 stands for the mean difference in pre versus posttest scores for the population of Control class students.

For each hypothesis test, the H_0 and H_a will be:

$H_0: \mu_1 - \mu_2 = 0$ (There is no difference in the changes in test scores.)

$H_a: \mu_1 - \mu_2 > 0$ (The change in test scores for Project GO students is greater.)

For each test, the test statistic will be:

$$T = \frac{\bar{x} - \bar{y}}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

For the IRI (Informal Reading Inventory data:

$$T = \frac{1.143 - (-0.310)}{\sqrt{\frac{1.292^2}{14} + \frac{1.039^2}{29}}}$$

$= 9.287$

For the Essay data:

$$T = \frac{2.643 - (-0.069)}{\sqrt{\frac{1.906^2}{14} + \frac{1.290^2}{29}}}$$

$= 4.515$

Using a t-distribution with $14 + 29 - 2 = 41$ degrees of freedom, a critical t-value of 1.684 is obtained.

Since $9.287 > 1.684$, reject H_0. There is sufficient evidence to force the conclusion that Project GO students show a significantly greater increase increase IRI test scores.

Since $4.515 > 1.684$, reject H_0. There is sufficient evidence to force the conclusion that Project GO students show a significantly greater increase in Essay test scores.

For the Nelson-Denny raw score data:

$$T = \frac{11.800 - 7.362}{\sqrt{\frac{8.719^2}{15} + \frac{10.155^2}{29}}}$$

$$= 1.341$$

Since $1.314 < 1.684$, do not reject H_o. That is, there is not sufficient evidence to force the conclusion that Project GO students show a significantly greater increase in Nelson-Denny total raw scores.

For the Habit Survey data:

$$T = \frac{7.250 - 3.000}{\sqrt{\frac{11.307^2}{12} + \frac{10.114^2}{28}}}$$

$$= 1.124$$

Since $1.124 < 1.684$, do not reject H_o. That is, there is not sufficient evidence to force the conclusion that Project GO students show a significantly greater increase in Habit Survey scores.

Part 2

For each hypothesis test:

μ_d stands for the mean difference in pre versus posttest scores for the population of Project GO students.

For each hypothesis test, the H_o and H_a will be:

$H_o: \mu_d = 0$ (There is no increase in test scores.)

$H_a: \mu_d > 0$ (There is a significant increase in test scores.)

For each test, the test statistic will be:

$$T = \frac{\bar{x}}{\frac{s}{\sqrt{n}}}$$

For each test, the critical t will be $t_c = 1.771$, based on a t-distribution with degrees of freedom 13.

For the IRI data:

$$T = \frac{1.143}{\frac{1.292}{\sqrt{14}}} = 3.310$$

For the Essay data:

$$T = \frac{2.743}{\frac{1.906}{\sqrt{14}}} = 5.188$$

For the Nelson-Denny raw score data:

$$T = \frac{11.300}{\frac{8.719}{\sqrt{13}}} = 5.242$$

For the Habit Survey data:

$$T = \frac{7.250}{\frac{11.307}{\sqrt{12}}} = 2.221$$

Each of the derived values of T are greater than the critical t-value 1.771. Thus, for each test, reject H_0. That is, there is sufficient evidence to force the conclusion that Project GO students show significant increases in each of the four tests used.

Part 3

For each confidence interval, the following equation will be used:

$$\text{Upper limit} = \bar{x} + 2.160\left(\frac{s}{\sqrt{n}}\right)$$

$$\text{Lower limit} = \bar{x} - 2.160\left(\frac{s}{\sqrt{n}}\right)$$

The 2.160 factor is from the t-distribution with degrees of freedom 13 that is used to construct confidence interval estimates with a 95% confidence coefficient.

IRI Test:

$$\text{Upper limit} = 1.143 + 2.160\left(\frac{1.292}{\sqrt{14}}\right) = 1.889$$

$$\text{Lower limit} = 1.143 - 2.160\left(\frac{1.292}{\sqrt{14}}\right) = 0.397$$

Thus a 95% confidence interval estimate for the mean increase in IRI test scores is between 0.397 and 1.889.

Essay Test:

$$\text{Upper limit} = 2.643 + 2.160\left(\frac{1.906}{\sqrt{14}}\right) = 3.743$$

$$\text{Lower limit} = 2.643 - 2.160\left(\frac{1.906}{\sqrt{14}}\right) = 1.543$$

Thus a 95% confidence interval estimate for the mean increase in Essay test scores is between 1.543 and 3.743.

Total/G.E.:

$$\text{Upper limit} = 11.800 + 2.160 \left(\frac{8.719}{\sqrt{15}} \right) = 16.663$$

$$\text{Lower limit} = 11.800 - 2.160 \left(\frac{8.719}{\sqrt{15}} \right) = 6.937$$

Thus a 95% confidence interval estimate for the mean increase in Total/G.E. test scores is between 6.937 and 16.663.

Habit Survey:

$$\text{Upper limit} = 7.250 + 2.160 \left(\frac{11.307}{\sqrt{12}} \right) = 14.300$$

$$\text{Lower limit} = 7.250 - 2.160 \left(\frac{11.307}{\sqrt{12}} \right) = 0.200$$

Thus a 95% confidence interval estimate for the mean increase in Habit Survey test scores is between 0.200 and 14.300.

SUMMARY OF RESULTS

1) Project GO students showed a significantly greater increase in scores on the informal reading inventory than the comparison group.

2) Project GO students did not show a significantly greater increase in scores on the standardized reading test than the comparison group.

3) Project GO students did not show a significantly greater increase in scores on the habit survey than the comparison group.

4) Project GO students showed a significantly greater increase in scores on the essay writing than the comparison group.

CONCLUSIONS

Project GO students demonstrated a statistically significant increase in test scores on all four measures, indicating that the skills-intervention instruction most probably had a positive effect on their ability to read a textbook, write an essay answer, improve their overall reading comprehension, and enhance their reading self-perception. The confidence interval estimates for the mean differences in pretest and posttest scores indicate, given similar circumstances, that skills-intervention instruction will probably have a positive effect on increasing each of the four posttest measures. The positive numbers at both the upper and lower limits of each confidence interval estimate strongly indicate that any GO class will experience a positive difference in a pre and posttest scheme.

The data further demonstrate that GO students showed a significantly higher increase in test scores than students in the control classes in two areas, the Informal Reading Inventory and the essay response to a critical/inferential thinking question. This seems to indicate that the type of instruction GO students received in their reading and study skills classes helped them improve their textbook reading and essay writing skills more than they would have if they had not been in the GO project.

While the GO students increased their mean posttest scores on the standardized test and the habit survey more than the control group, the increase was not enough to demonstrate statistical significance. This may show that regular content course work or other parts of the college curriculum can also contribute to improvement in reading comprehension and reading self-perception.

In sum, the data indicate that the GO project has a positive effect on students' ability to: 1) read a textbook for understanding; 2) organize and write an essay answer; 3) answer text-related critical thinking questions of an inferential nature; 4) view themselves as active, effective readers; and 5) improve their overall reading scores on a standardized test. The GO project's area of greatest success was in helping students deal effectively with understanding their textbooks and write essay answers. These conclusions are a strong recommendation for the continuation of project GO and other skills-intervention programs that teach skills in conjunction with a content, transfer level course. It is a successful method of delivering skills instruction and promotes more skill improvement than student participation in a regular college course.

LIMITATIONS

There are several limitations to this study:

1) Students in the comparison group had higher skills than students in the experimental group at the beginning of the semester; therefore, their mean pre and posttest difference may not have been as large as the experimental groups because they did not have as far to go; i.e. some control students scored at the top of the grading scale for the standardized test at the beginning of the semester.

2) The essay and informal reading inventory were administered by the English 71 instructor. GO students had developed a personal relationship with the instructor by the end of the semester which may have been added incentive for them to strive harder than the comparison group.

3) The same informal reading inventory was used for both pre and posttests. This may have contributed to higher posttest scores; however, it should not effect the comparison of mean differences of the control and experimental groups.

4) The experimental group sample was small due to attrition or absences at test times.

5) The attitude of the comparison group toward the testing was at times negative. Some students expressed dissatisfaction at having to take tests that did not "count" toward their sociology grade. This could have adversely affected their test scores.

ERIC Clearinghouse for
Junior Colleges APR 15 1988